8TH GRADE CURRICULUM OUTLINE
TRANSPORTATION MODULE

Lesson I: 8th Grade
Transportation: American Driving Habits
- Brainstorming session
- Create word maps and diagramming exercises

Lesson 2: 8th Grade
American Driving Habits Explored: Why Do We Drive?
- Brainstorming session exploring and becoming aware of our personal driving habits
- Create driving habit graphs

Lesson 3: 8th Grade
How are Communities Organized
- From local to global–community organization and transportation options

Lesson 4: 8th Grade
Life-cycle Costs: Learning to Consider the hidden Costs of Technology
- Read a chapter from *Stuff: the Secret Lives of Everyday Things*
- Research and discuss the pros and cons of ethanol production and use

Lesson 5: 8th Grade
Consumer Choices: Making a Difference
- Linking the causes and effects of transportation to local and global issues
- Understanding feedback loops

Lesson 6: 8th Grade
Hybrid Vehicles: a growing alternative
- Compile & discuss alternative transportation energy initiatives discovered
- Discuss U.S. alternative transportation energy initiatives: hybrid vehicles, bio-diesel, electric vehicles

Lesson 7: 8th Grade
Engines, Transmissions, Brakes, and Steering
- Quick lesson of basic parts of a car: diagrams
- De-mystifying how a car works

Lesson 8: 8th Grade
Design Lego Racers using Lego Designer Program
- Using Lego Designer create multiple rough construction ideas for racer designs
- Design Journal notes–descriptive ideas, best designs, pros and cons of different designs

Lesson 9: 8th Grade
Adding the Solar Panel to the Model Cars
- Basic lesson on how solar cells work
- Discuss different solar cell technology available today
- Hands' on experiments with the solar cells and engines
- Design Journal notes–descriptive ideas, experiments, designs, messes & successes

Lesson 10: 8th Grade
Build Solar Cars: Testing and Refining the Solar Car Designs
- Based on design experiementations from Lego Designer, build racers with actual parts and then test and refine.

Race Day